

We claim:

1 A broadband Internet Protocol (IP) based network, comprising:
2 at least one customer coupled to the network for receiving IP services;
3 means for generating a DHCP message in a customer request for IP services with
4 a selected Internet Services Provider (ISP);
5 server means for receiving the request and DHCP message and generating an
6 extended DHCP request; and
7 means for receiving and routing the customer request and extended DHCP request
8 to the selected ISP for providing IP services to the customer via the selected ISP

1 The broadband network of Claim 1 further comprising:
2 modem means for coupling the customer to the network; and
3 means for generating a unique customer address as part of the DHCP request.

1 The broadband network of Claim 1 further comprising:
2 means coupled to the server means for storing customer address information.

1 4. The broadband network of Claim 1 further comprising:
2 means for mapping the unique customer address to DHCP request.

1 5. The broadband network of Claim 1 further comprising:
2 routing means coupled to the server and a network serving a plurality of ISP.

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1 6. A broadband multi service proxy server, comprising:
2 means coupling the server to a broadband IP based network serving a plurality of
3 customers;
4 means coupling the server to an IP network via at least one Internet Service
5 Providers (ISP) in a plurality of ISPs;
6 means for generating a customer request including a DHCP message for access to
7 the IP network; and
8 means for generating an extended DHCP message format in the server enabling a
9 customer to access an ISP of choice for IP network services.

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2 The server of Claim 6 further comprising:

2 means for generating a unique address for a customer and storing the address in
3 the server as an origination source for a customer request.

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2 The server of Claim 6 further comprising:

2 means for pre-registering a customer for IP service with an ISP prior to
3 generating a customer request;
4 means for sending the server a customer ID and password for customers
5 registered by the ISP.

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The server of Claim 6 further comprising:

2 means for sending a DHCP and unique customer address in a customer request for
3 access to the IP network;

4 means for receiving the customer request and storing the unique customer address
5 in a database coupled to the server.

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1 10. The server of Claim 6 further comprising:

2 means for sending the server an extended DHCP response and customer assigned
3 address for customer requests validated by the ISP.

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1 11. The server of Claim 6 further comprising:

2 server means for mapping validated customer requests to a unique customer
3 address; and

4 server means emulating the ISP and sending the customer a DHCP response to the
5 customer request.

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1 12. The server of Claim 6 further comprising:

2 means for validating a customer request for access to the IP network at an ISP of
3 customer choice.

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1 13. In a broadband IP based network including server means coupled to the network and to a
2 plurality of ISPs via a switching means, a method of providing IP services to network customers
3 via ISP of their choice, comprising the steps of:

5 generating a request by a customer including a DHCP message for IP services
6 from a selected ISP;

7
8 sending the request and DHCP message to the server for processing to determine
9 if the customer is approved by the network for receiving IP services;

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11 sending the request and an extended DHCP message for IP service to the selected
12 ISP;

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14 and
15 returning the extended DHCP message to the server and updating tables in the
16 switching means to provide the customer with IP services directly from the selected ISP.

17 14. The method of Claim 13 further comprising the step of:

1 2 3 mapping the DHCP message to the customer at a unique network address.

4 15. The method of Claim 13 further comprising the step of:

2 3 4 emulating the ISP by the server means and sending a DHCP reply to the customer
followed by updating the switching means to allow the customer to access the ISP of its choice.

4 16. The method of Claim 13 further comprising the step of:

2 checking the extended DHCP message by the ISP to determine if the customer is
3 approved to receive IP services.

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1 17. The method of Claim 13 further comprising the step of:

2 notifying the server when the ISP determines the customer is not approved to
3 receive IP services.

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1 18. The method of Claim 13 further comprising the step of:

2 sending the server a customer ID and password for customers registered by the
3 ISP.

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1 19 The method of Claim 13 further comprising the step of:

2 sending the server an extended DHCP response and customer assigned address for
3 customer requests validated by the ISP.

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1 20 The method of Claim 14 wherein the unique customer address is a MAC address.